

*The
Matryoshka
Project*

*Examining the Effects
of Enhanced Funding
for Specialized Programs*



Early Intervention Program Substance Use Report

JULY 2009

The Matryoshka Project
Examining the Effects of Enhanced Funding
for Specialized Programs

Early Intervention Program Substance Use Report

JULY 2009

Wayne K. deRuiter, MSc

Health Systems Research and Consulting Unit
Centre for Addiction and Mental Health
Toronto, Ontario, Canada

Carolyn S. Dewa, MPH, PhD

Health Systems Research and Consulting Unit
Centre for Addiction and Mental Health
Toronto, Ontario, Canada

Department of Psychiatry
University of Toronto
Toronto, Ontario, Canada

Chiachen Cheng, MD, FRCP(C), MPH

Canadian Mental Health Association – Thunder Bay Branch
Thunder Bay, Ontario, Canada

Department of Psychiatry
McMaster University
Hamilton, Ontario, Canada

Contents

Key Findings 1

Executive Summary 3

Approach 4

Results 5

Section I: Illicit Drug Use (*Table 1 to Table 3*) 5

Section II: Alcohol Consumption (*Table 4 to Table 6*) 7

Section III: Substance Abuse and Dependence (*Table 7 to Table 9*) 8

Section IV: Tobacco Use (*Table 10 to Table 12*) 10

Implications 13

Appendix: Detailed Tables 15

References 24

Project Contributors 25

Site Interviews and Program Support 26

Key Findings

The purpose of this report was to determine the occurrence of illicit drugs, alcohol, and tobacco use among individuals experiencing their first psychotic episode. The following key findings were observed with regards to substance and tobacco use among first-episode psychosis clients:

Key Finding 1

Substance abuse is a substantial problem among first-episode psychosis clients.

- Approximately half of all first-episode psychosis clients used illicit drugs in the previous 6 months.
- One quarter of clients used multiple drugs over the past 6 months.
- Nearly 38% of clients report moderate or severe substance dependence, while almost 45% of clients demonstrated moderate or severe substance problems.

Key Finding 2

Cannabis is the most commonly used illicit drug among first-episode psychosis clients.

Key Finding 3

Substance use varies among geographical regions.

- A greater proportion of first-episode psychosis clients residing in midsize regions used cocaine/crack compared to clients residing in other regions.
- A greater proportion of first-episode psychosis clients living in urban regions used benzodiazepines compared to their counterparts residing in other geographical regions.
- A greater proportion of clients in the midsize regions used one or more illicit drugs in the past 6 months compared to clients residing in rural or urban regions.

Key Finding 4

Gender differences exist for substance use, abuse, dependence, and problems.

- Compared to females, a greater percentage of males reported moderate or severe levels of substance use and abuse.
- A greater proportion of males demonstrated higher levels of substance dependence.
- A higher percentage of males reported a moderate or severe substance problem.

Key Finding 5

Smoking is a common practice among first-episode psychosis clients.

- Two-thirds of first-episode psychosis clients smoked at least 100 cigarettes in their life.
- Currently, nearly 43% of clients smoke daily, whereas an additional 8% clients are occasional smokers.
- On average, clients smoke 12 cigarettes per day and smoked for over seven years.

Key Finding 6

Regional differences exist for smoking behaviour.

- Midsize regions reported the highest proportion of current daily smokers, whereas urban regions demonstrated the greatest percentage of non-smokers.
- Clients residing in midsize regions began smoking at a significantly younger age than clients living in urban regions.
- Smokers in urban regions smoked for a shorter duration compared to their counterparts residing in rural and midsize regions.

Key Finding 7

The majority of clients began smoking as minors.

- Nearly 80% of clients began smoking before they were 19 years of age.
- The greatest proportion of these clients was found in midsize regions as nearly all clients, 96%, had begun smoking before the age of 19.
- Urban regions reported the lowest proportion of clients smoking before the age of 19.

Executive Summary

The purpose of the report is to present findings related to illicit drugs, alcohol, and tobacco use among individuals enrolled in first-episode psychosis programs. Substance use among first-episode psychosis clients is approximately double that observed in the general population [1]. As substance use continues to be more common among individuals with first-episode psychosis, it is not unusual for these individuals to exhibit substance abuse and/or dependenceⁱ. Approximately half of first-episode clients report substance abuse or dependence [3] with cannabis and alcohol being the most popular choices [4, 5].

Similar to substance use, daily tobacco use is more common among individuals diagnosed with severe mental illness than the general population. As the occurrence of smoking is typically around 20% for the general population, over 70% of first-episode patients smoke [6]. This increased rate of smoking among first-episode psychosis clients could likely bring about a greater susceptibility of heart disease and cancer.

The following report is divided into four sections. The first two sections of this report focus on illicit drug use and alcohol consumption, respectively. The third section specifically examines substance abuse and dependence among first-episode psychosis clients. Finally, this report examines tobacco use as well as measures of nicotine dependence including age that individuals began to smoke, the number of cigarettes smoked on a daily basis, and the number of years that individuals have smoked.

ⁱ Substance abuse refers to repeated substance use that produces recurrent and substantial adverse consequences including frequent impairment or distress in social and/or interpersonal functioning, an inability to perform responsibilities at work, home, or school, and repeated use during potentially dangerous situations. Substance dependence includes recurrent use that produces tolerance, withdrawal signs and/or symptoms, and continued use despite the occurrence of physical or psychological problems (American Psychiatric Association, 2000).

Approach

The findings of this report are based upon data collected from waves two and three of the Matryoshka Project. The Matryoshka Project is a three year study which examines the effects of new funding on the continuity of care received by new and ongoing clients enrolled in two types of specialized programs within the mental health system. These two types of specialized programs included: (1) young individuals who were experiencing first-episode psychosis and (2) court support programs for individuals diagnosed with a mental illness and have been involved with the justice system. This report builds upon the findings from the Matryoshka Project: Wave 3 Report [7] where we reported the occurrence of substance use among individuals experiencing their first-episode psychosis.

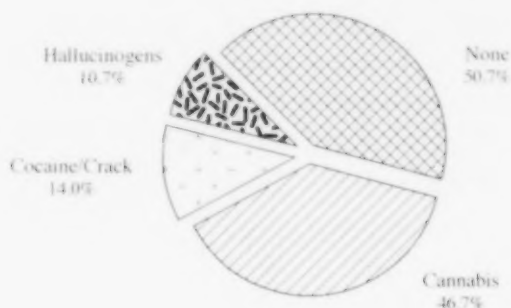
For the Matryoshka Project analyses, geographical regions were defined using the population density of the program regions. Three regions were defined: (1) metropolitan/urban regions, (2) midsize regions, and (3) rural regions. The metropolitan/urban regions have a population of at least 3,929 people residing per square kilometre. Midsize regions include areas which have populations between 200 and 450 individuals per square kilometre, while rural regions include areas in which 100 individuals or less reside per square kilometre.

Results

Section I: Illicit Drug Use (Table 1 to Table 3)

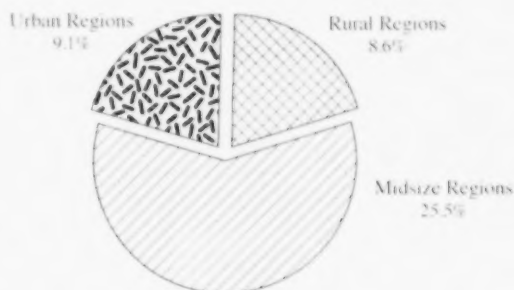
Approximately half of first-episode psychosis clients used an illicit drug during the previous 6 months (Table 1). Among first-episode psychosis clients, cannabis was the most commonly used illicit drug. Overall 46.7% of first-episode psychosis clients used cannabis during the past 6 months. At nearly 15%, cocaine or crack was the second most commonly used drug among first-episode psychosis patients. Hallucinogens were used by approximately 11% of clients (Figure 1).

FIGURE 1:
Illicit Drug Use
Among Total Clients



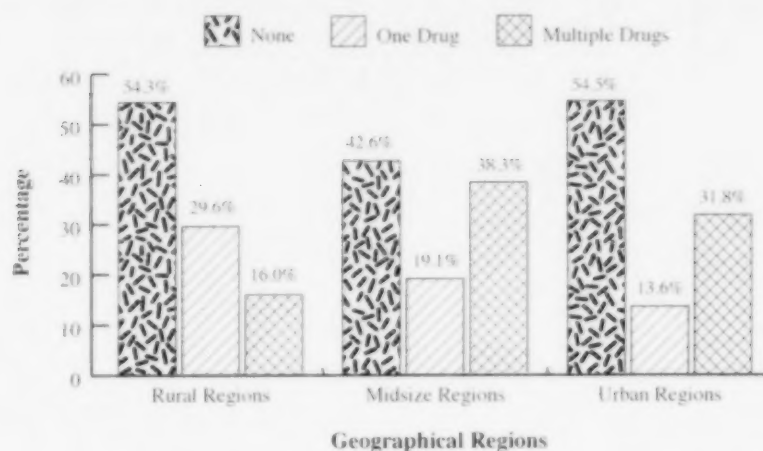
The proportion of individuals who used cannabis and hallucinogens in the past 6 months was consistently similar between all three geographical regions. However, in Table 1, a significant difference was observed for cocaine and/or crack use among the three regions. A greater percentage of clients in midsize regions used cocaine and/or crack during the previous 6 months compared to clients in the rural or urban regions. One quarter of clients living in midsize regions used cocaine and/or crack, whereas less than 10% of clients used cocaine and/or crack in rural and urban regions (Figure 2).

FIGURE 2:
Cocaine/Crack Use
Among Geographical Regions



In total, 24% of clients used one drug in the past 6 months, while 25% of first-episode psychosis clients used two or more illicit drugs. Upon examination of the three geographical regions, a significant difference was observed among the geographical regions with regard to illicit drug patterns (Table 1). A greater proportion of clients in rural areas used only one illegal drug compared to their counterparts living in midsize or urban regions. Furthermore, a greater percentage of clients in midsize regions used at least two illicit drugs compared to clients residing in the rural and urban regions (Figure 3).

FIGURE 3:
Number of
Illicit Drugs
Used Among
Clients Among
Geographical
Regions



As shown in Table 2, a greater proportion of males used an illicit drug in the past 6 months. Cannabis was the most commonly used illicit drug among both males and females, followed by cocaine or crack. A greater percentage of males used multiple illicit drugs compared to females.

Table 3 indicates that a greater proportion of clients 21 years of age or younger used illicit drugs in the previous 6 months. Cannabis was the most commonly used drug among both younger and older first-episode psychosis clients. In addition, compared to older clients, a slightly larger proportion of younger clients used multiple drugs.

Section II: Alcohol Consumption (Table 4 to Table 6)

Over a 90 day period, first-episode psychosis clients reported drinking beer, wine, or any other kind of alcoholic beverage on either 8 consecutive or non-consecutive days (Table 4). Clients in the midsize regions drank during a greater number of days than clients in the rural and urban regions. In fact, first-episode psychosis clients residing in rural and midsize regions consumed alcohol on approximately twice as many days as compared to clients living in urban regions. Of the 8 days that clients drank an alcoholic beverage, a state of intoxication was achieved on 4 of these daysⁱⁱ. Individuals residing in midsize regions were intoxicated on more days than individuals in rural and urban regions. Interestingly, of those clients who drank, approximately 70% were intoxicated at least once during the preceeding 90-day period.

Alcohol consumption among male and female first-episode psychosis clients was quite similar (Table 5). Over a 90 day period, males reported drinking alcoholic beverages on nearly 9 days, while females drank on 8 days. Intoxication was reached among males on 4 days, whereas females were intoxicated on 3 days.

Older clients drank alcoholic beverages on more days than younger clients (Table 6). In addition, compared to younger clients, older clients were intoxicated on a greater number of days.

ⁱⁱ Intoxication refers to the act of getting drunk or consuming 5 or more drinks on one occasion.

Section III: Substance Abuse and Dependence (Table 7 to Table 9)

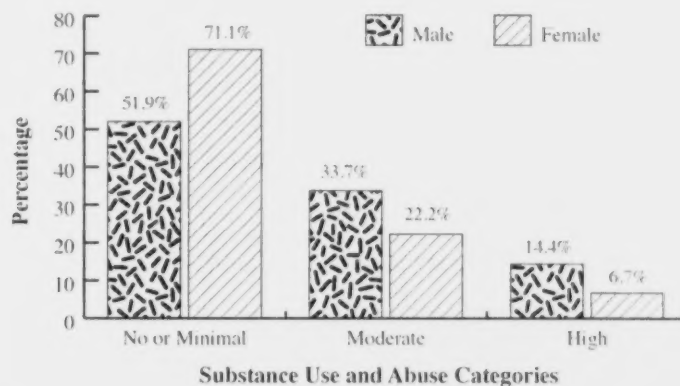
The majority of individuals reported no or minimal use and abuse of illicit drugs or alcohol during the past 12 months (Table 7). In total, approximately 30% of clients demonstrated moderate substance use and abuse, whereas 12% of clients reported severe substance use and/or abuse. The greatest percentage of clients exhibiting no or minimal substance use and abuse resided in urban regions, whereas clients living in midsize regions reported higher rates of moderate and severe substance use and abuse.

Nearly two-thirds of clients reported no or only minimal dependence on illicit drugs or alcohol (Table 7). Approximately 15% of individuals reported that their dependence on illicit drugs or alcohol was severe. Individuals in midsize regions reported the lowest proportion of no or minimal substance dependence. However, a greater percentage of clients residing in midsize regions also reported moderate or severe substance dependence.

In total, the majority of first-episode psychosis clients had either no or minimal substance problems (Table 7). Approximately 32% of individuals had a moderate problem with illicit drugs or alcohol, while nearly 13% individuals reported a severe problem with drugs and alcohol. The largest proportions of individuals with a moderate or severe substance problem resided in midsize regions. Individuals residing in urban regions reported higher rates of either no or minimal substance problems.

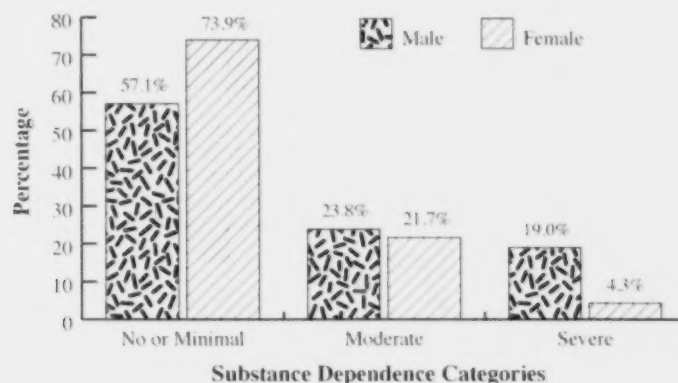
In Table 8, a significant difference in substance use and abuse was observed between males and females. Females demonstrated higher rates of no or minimal substance use and abuse compared to their male counterparts. Consequently, a greater proportion of males reported moderate or severe substance use and abuse compared to females. In fact, the percentage of males reporting severe substance use and abuse was more than double the percentage of females reporting severe substance use and abuse (Figure 4).

FIGURE 4:
Substance Use
and Abuse
Between Genders



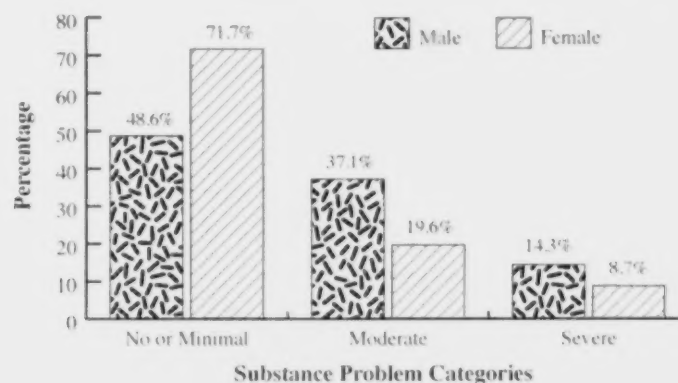
Similar results were observed for substance dependence as a significant difference was observed for substance dependence between males and females. A greater proportion of females showed no or minimal substance dependence, while moderate and severe substance dependence was reported by more males (Figure 5).

FIGURE 5:
Substance
Dependence
Between Genders



Significant differences for substance problems were also observed between genders. Compared to females, a smaller percentage of males had no or a minimal substance problem. Consequently, a greater proportion of males had a moderate or severe substance problem (Figure 6).

FIGURE 6:
Substance
Problem
Between Genders



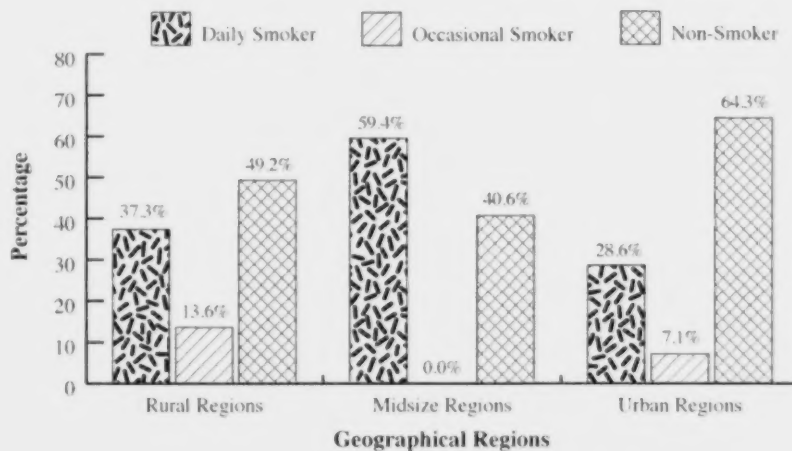
In Table 9, the proportion of individuals exhibiting either no or minimal substance use and abuse was higher among older clients, while a greater percentage of younger first-episode psychosis clients reported severe substance use and abuse. Similar findings were observed for substance dependence and substance problem. A larger proportion of older clients reported no or minimal substance dependence and substance problem, while a greater proportion of younger clients reported severe substance dependence and substance problem.

Section IV: Tobacco Use (Table 10 to Table 12)

In Table 10, approximately two-thirds of clients had ever smokedⁱⁱⁱ. Midsize regions had the highest percentage of clients who ever smoked, whereas clients in urban regions had the lowest proportion.

Over 40% of clients were smoking on a daily basis, while nearly 50% of clients were non-smokers. A significant difference in current smoking behaviour was observed among geographical regions. Midsize regions had the highest proportion of daily smokers as approximately 60% of clients were current daily smokers. The highest percentage of non-smokers was found in urban regions (Figure 7).

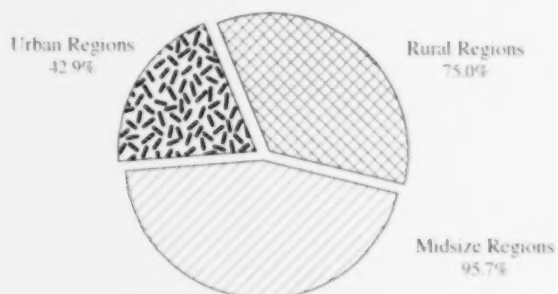
FIGURE 7:
Current
Smoking
Behaviour
Among
Regions



ⁱⁱⁱ Ever smoked refers to individuals who had ever smoked 100 cigarettes or more in their lifetime.

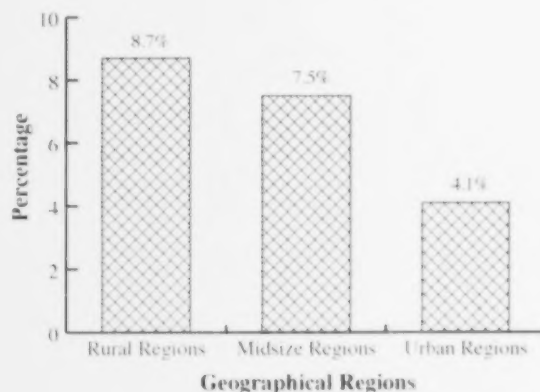
The mean age at which clients began to smoke was at approximately 15 years. Clients residing in the midsize region began smoking at a significantly younger age compared to clients living in urban regions. In total, nearly 80% of clients began smoking as minors (age of 18 years or less) and a significant difference was reported among geographical regions. Midsize regions reported the highest proportion of clients who began to smoke as minors, while urban clients had the lowest proportion (Figure 8).

FIGURE 8:
Number of Smokers
who Began Smoking
as a Minor Among
Geographical Regions



Clients reported smoking an average of 12 cigarettes per day and smoking for approximately 8 years. Rural clients reported smoking for twice as long as urban clients. Similarly, clients in the midsize regions smoked for more years compared to clients in urban regions (Figure 9).

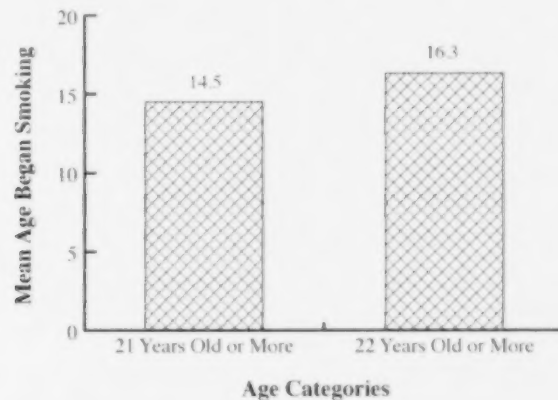
FIGURE 9:
Number of Years
Smoking Years
Among Regions



In Table 11, compared to females, a greater proportion of males reported ever smoking and current daily smoking. Although females began smoking at younger ages, males smoked more cigarettes per day and smoked for more years. A greater proportion of females began smoking as minors.

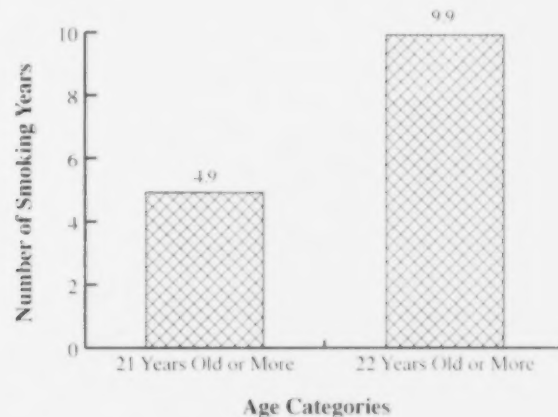
Although a greater percentage of older clients ever smoked, a higher percentage of younger clients currently smoked daily (Table 12). Younger clients began smoking at significantly younger ages compared to older clients (Figure 10).

FIGURE 10:
Mean Age
Began to Smoke
Between Age Groups



Older first-episode psychosis clients smoked more cigarettes per day compared to their younger counterparts. Furthermore, as expected, older clients smoked for significantly more years compared to younger clients (Figure 11).

FIGURE 11:
Number of Smoking
Years Between
Age Groups



Implications

The resulting regional differences observed in the Matryoshka Project highlight the risks associated with substance and tobacco use. In all regions, approximately half of all first-episode psychosis clients used illicit drugs during the last 6 months. Similar to other studies, cannabis was the most commonly used illicit drug in this sample [1, 4, 8]. We observed very few regional differences for substance use, both illicit drugs and alcohol consumption, among the 3 geographical regions. Use of cocaine/crack was the only regional difference observed as one quarter of first-episode psychosis clients residing in midsize regions used this illicit substance within the past 6 months compared to nearly 10% of clients who lived in rural and urban regions.

Approximately 37% to 45% of first-episode psychosis clients reported moderate or severe substance use and abuse, dependence, and/or problems. Although it is difficult to compare different scales for measuring substance abuse and dependence, similar findings have been reported elsewhere [3, 5]. Interestingly, measures of substance use and abuse, dependence, and problems as well as frequency of alcohol consumption and intoxication were not significantly different among regions. In the past, it was believed that residing in rural regions provided a protective environment against participating in negative health behaviours such as substance use, abuse, and dependence [9]. The fact that individuals residing in various geographical regions demonstrate nearly similar drug and alcohol use, abuse, dependence, and problems refutes this belief [9]. Possible explanations for the observed similarities in drug and alcohol use among regions could be increased availability of illicit substances or a lack of or less effective strategies to prevent substance use in rural and midsize regions [9]. Furthermore, an increased awareness of the potential dangers associated with substance use may lead to greater abstinence rates within urban regions [9]. Thus, prevention of substance use and misuse in rural and midsize areas is as essential as it is in urban areas [9].

The observed gender differences have also been replicated in other studies [6]. Among young people with FEP, there is a greater proportion of males (at younger age) who abuse substances, use more heavily and are more likely to experience substance dependence [6].

Daily tobacco use can pose substantial risks to physical health and continues to be a justifiable concern for individuals experiencing first-episode psychosis [10] as individuals with chronic psychosis experience earlier mortality from smoking-related diseases [11]. We observed the most noticeable differences among geographical regions were in tobacco use. Thus, mental illness and smoking could be more problematic than mental illness and substance use [12]. In this sample, the Matryoshka Project found that almost two-thirds (64.8%) of the subjects had ever smoked cigarettes and almost half (42.9%) smoked daily. These numbers are slightly lower than published literature that indicated a higher percentage of subjects with schizophrenia/psychosis use tobacco daily [8, 10, 12]. Despite these lower numbers, tobacco use is very concerning because the majority (78.8%) of first-episode psychosis clients began smoking as minors. In fact, the average age of the entire sample is 23.4 years (5.3 SD) and they reported smoking for 7.8 years (4.8 SD). Furthermore, nearly every smoker in midsize regions began smoking as a minor compared to 43% of smokers in urban regions. The fact that nearly 80% of first-episode psychosis clients began smoking as minors suggests that access to tobacco products is relatively easy. This is particularly true in midsize regions where nearly every smoker began using tobacco products as a minor. If one considers tobacco use as a risk factor for further illicit drugs or substance abuse, then the early tobacco use can possibly accentuate this risk [10]. Stricter legislation, regulation, enforcement, and community policies could limit the access of tobacco products to minors [13].

The results support the assertion that the incorporation of interventions which promote and provide assistance in abstaining from substance use and smoking cessation should be a top priority for psychiatric services [8, 12]. Although the generalization of these results could be questioned due to the small sample in urban regions, these findings suggest residing in rural areas does not provide a protective environment for first-episode psychosis clients from the use and misuse of illicit drugs, alcohol, and tobacco. However, the Matryoshka Project results indicate that midsize populations may be at the most risk for substance abuse and tobacco use, as compared to rural or urban regions. Health professionals should take this into consideration when developing psychiatric programs among geographical regions.

Appendix: Detailed Tables

Table 1: Substance Use of First-Episode Psychosis Clients Among Geographical Regions

	Total (n=150*)		Rural Regions (n=81*)		Midsize Regions (n=47*)		Metropolitan/ Urban Regions (n=22*)	
	%	n	%	n	%	n	%	n
Drug use:								
None	50.7%	76	54.3%	44	42.6%	20	54.5%	12
Cannabis	46.7	70	42.0	34	57.4	27	40.9	9
Cocaine/Crack	14.0	21	8.6 ^b	7	25.5	12	9.1	2
Hallucinogens	10.7	16	6.2	5	17.0	8	13.6	3
Codeine	7.3	11	8.6	7	8.5	4	0.0	0
Amphetamines	5.3	8	3.7	3	8.5	4	4.5	1
Benzodiazepines	4.0	6	1.2 ^b	1	4.3	2	13.6	3
Opiates	2.7	4	3.7	3	2.1	1	0.0	0
Barbiturates	0.7	1	1.2	1	0.0	0	0.0	0
Glue/Other	0.7	1	0.0	0	0.0	0	4.5	1
Illicit drug patterns:								
None	50.7%	76	54.3% ^b	44	42.6%	20	54.5%	12
One drug	24.0	36	29.6	24	19.1	9	13.6	3
Multiple drugs	25.3	38	16.0	13	38.3	18	31.8	7

*Numbers may not total due to missing data. Percentages were calculated without missing data.

Significant differences between regions ^a p≤0.1; ^b p≤0.05; ^c p≤0.01

**Table 2: Substance Use of First-Episode Psychosis
Male and Female Clients**

	Male (n=104*)		Female (n=46*)	
	%	n	%	n
Drug use:				
None	48.1%	50	56.5%	26
Cannabis	50.0	52	39.1	18
Cocaine/Crack	13.5	14	15.2	7
Illicit drug patterns:				
None	48.1%	50	56.5%	26
One drug	23.1	24	26.1	12
Multiple drugs	28.8	30	17.4	8

*Numbers may not total due to missing data. Percentages were calculated without missing data.

**Table 3: Substance Use of First-Episode Psychosis
Younger and Older Clients**

	21 Years Old or Less (n=70*)		22 Years Old or More (n=80*)	
	%	n	%	n
Drug use:				
None	44.3%	31	56.3%	45
Cannabis	51.4	36	42.5	34
Cocaine/Crack	10.0	7	17.5	14
Illicit drug patterns:				
None	44.3%	31	56.3%	45
One drug	28.6	20	20.0	16
Multiple drugs	27.1	19	23.8	19

*Numbers may not total due to missing data. Percentages were calculated without missing data.

**Table 4: Alcohol Consumption of First-Episode Psychosis Clients
Among Geographical Regions**

	Total (n=148*)		Rural Regions (n=78*)		Midsize Regions (n=47*)		Metropolitan/ Urban Regions (n=23*)	
	mean	sd	mean	sd	mean	sd	mean	sd
Number of days drank beer, wine or any kind of alcohol	8.3	14.8	8.1	15.8	10.5	15.4	4.7	8.3
Number of days got drunk or had 5 or more drinks at one time	4.0	8.6	3.5	8.9	5.0	8.6	3.6	7.8

*Numbers may not total due to missing data. Percentages were calculated without missing data.

**Table 5: Alcohol Consumption of First-Episode Psychosis
Male and Female Clients**

	Male (n=103*)		Female (n=45*)	
	mean	sd	mean	sd
Number of days drank beer, wine or any kind of alcohol	8.5	14.5	8.0	15.7
Number of days got drunk or had 5 or more drinks at one time	4.3	8.9	3.1	7.9

*Numbers may not total due to missing data. Percentages were calculated without missing data.

**Table 6: Alcohol Consumption of First-Episode Psychosis
Younger and Older Clients**

	21 Years Old or Less		22 Years Old or More	
	(n=68*)		(n=80*)	
	mean	sd	mean	sd
Number of days drank beer, wine or any kind of alcohol	6.2	9.5	10.2	17.9
Number of days got drunk or had 5 or more drinks at one time	3.6	7.6	4.3	9.4

*Numbers may not total due to missing data. Percentages were calculated without missing data.

**Table 7: Substance Abuse, Dependence, and Problem of First-Episode Psychosis Clients
Among Geographical Regions**

	Total		Rural Regions		Midsize Regions		Metropolitan/ Urban Regions	
	(n=151*)		(n=81*)		(n=47*)		(n=23*)	
	%	n	%	n	%	n	%	n
Substance use and abuse scale:								
No or minimal	57.7%	86	60.0%	48	46.8%	22	72.7%	16
Moderate	30.2	45	30.0	24	38.3	18	13.6	3
Severe	12.1	18	10.0	8	14.9	7	13.6	3
Substance dependence scale:								
No or minimal	62.3%	94	66.7%	54	51.1%	24	69.6%	16
Moderate	23.2	35	19.8	16	31.9	15	17.4	4
Severe	14.6	22	13.6	11	17.0	8	13.0	3
Substance problem scale:								
No or minimal	55.6%	84	59.3%	48	44.7%	21	65.2%	15
Moderate	31.8	48	30.9	25	38.3	18	21.7	5
Severe	12.6	19	9.9	8	17.0	8	13.0	3

*Numbers may not total due to missing data. Percentages were calculated without missing data.

Table 8: Substance Abuse, Dependence, and Problem of First-Episode Psychosis Male and Female Clients

	Male (n=105*)		Female (n=46*)	
	%	n	%	n
Substance use and abuse scale:				
No or minimal	51.9% ^a	54	71.1%	32
Moderate	33.7	35	22.2	10
Severe	14.4	15	6.7	3
Substance dependence scale:				
No or minimal	57.1% ^b	60	73.9%	34
Moderate	23.8	25	21.7	10
Severe	19.0	20	4.3	2
Substance problem scale:				
No or minimal	48.6% ^b	51	71.7%	33
Moderate	37.1	39	19.6	9
Severe	14.3	15	8.7	4

*Numbers may not total due to missing data. Percentages were calculated without missing data.

Significant differences between gender ^a $p \leq 0.1$; ^b $p \leq 0.05$; ^c $p \leq 0.01$

Table 9: Substance Abuse, Dependence, and Problem of First-Episode Psychosis Younger and Older Clients

	21 Years Old or Less (n=70*)		22 Years Old or More (n=81*)	
	%	n	%	n
Substance use and abuse scale:				
No or minimal	53.6%	37	61.3%	49
Moderate	33.3	23	27.5	22
Severe	13.0	9	11.3	9
Substance dependence scale:				
No or minimal	61.4%	43	63.0%	51
Moderate	20.0	14	25.9	21
Severe	18.6	13	11.1	9
Substance problem scale:				
No or minimal	52.9%	37	58.0%	47
Moderate	32.9	23	30.9	25
Severe	14.3	10	11.1	9

*Numbers may not total due to missing data. Percentages were calculated without missing data.

**Table 10: Smoking Behaviour of First-Episode Psychosis Clients
Among Geographical Regions**

	Total (n=105*)		Rural Regions (n=59*)		Midsize Regions (n=32*)		Metropolitan/ Urban Regions (n=14*)	
	%	n	%	n	%	n	%	n
Smoking history:								
Ever smoked	64.8%	68	62.7%	37	75.0%	24	50.0%	7
Current smoking behaviour:								
Daily	42.9%	45	37.3% ^a	22	59.4%	19	28.6%	4
Occasionally	8.6	9	13.6	8	0.0	0	7.1	1
Non-Smoker	48.6	51	49.2	29	40.6	13	64.3	9
Mean age began to smoke (sd)[†]	15.5	(3.2)	15.6	(3.3)	14.9 [†]	(2.7)	17.4	(3.9)
Percentage of smokers who began smoking as a minor[†]	78.8%	52	75.0% ^c	27	95.7%	22	42.9%	3
Mean number of cigarettes smoked per day (sd)[†]	12.1	(7.6)	12.0	(6.9)	12.7	(8.5)	10.9	(8.3)
Number of smoking years (sd)[†]	7.8	(4.8)	8.7 ^c	(5.5)	7.5 [‡]	(3.9)	4.1	(2.3)

*Numbers may not total due to missing data. Percentages were calculated without missing data.

Significant differences between regions ^a p≤0.1; ^b p≤0.05; ^c p≤0.01

Significant differences between rural and urban regions ^d p≤0.1; ^e p≤0.05

Significant differences between midsize and urban regions [†] p≤0.1; [‡] p≤0.05

[†] Includes only people who ever smoked.

**Table 11: Smoking Behaviour of First-Episode Psychosis
Male and Female Clients**

	Male (n=66*)		Female (n=39*)	
	%	n	%	n
Smoking history:				
Ever smoked	68.2%	45	59.0%	23
Current smoking behaviour:				
Daily	48.5%	32	33.3%	13
Occasionally	7.6	5	10.3	4
Non-Smoker	43.9	29	56.4	22
Mean age began to smoke (sd)[†]	15.7	(3.4)	15.3	(2.7)
Percentage of smokers who began smoking as a minor[†]	74.4%	32	87.0%	20
Mean number of cigarettes smoked per day (sd)[†]	12.2	(6.9)	12.0	(8.9)
Number of smoking years (sd)[†]	8.0	(5.0)	7.3	(4.6)

*Numbers may not total due to missing data. Percentages were calculated without missing data.

[†] Includes only people who ever smoked.

**Table 12: Smoking Behaviour of First-Episode Psychosis
Younger and Older Clients**

	21 Years Old or Less (n=47*)		22 Years Old or More (n=58*)	
	%	n	%	n
Smoking history:				
Ever smoked	63.8%	30	65.5%	38
Current smoking behaviour:				
Daily	44.7%	21	41.4%	24
Occasionally	10.6	5	6.9	4
Non-Smoker	44.7	21	51.7	30
Mean age began to smoke (sd)[†]	14.5 ^b	(2.9)	16.3	(3.2)
Percentage of smokers who began smoking as a minor[†]	85.7%	24	73.7%	28
Mean number of cigarettes smoked per day (sd)[†]	11.1	(7.7)	13.0	(7.5)
Number of smoking years (sd)[†]	4.9 ^c	(3.2)	9.9	(4.7)

*Numbers may not total due to missing data. Percentages were calculated without missing data.

Significant differences between age groups ^a p≤0.1; ^b p≤0.05; ^c p≤0.01

[†] Includes only people who ever smoked.

References

- [1] Barnett JH, Werners U, Secher SM, Hill KE, Brazil R, Masson K, et al. Substance use in a population-based clinic sample of people with first-episode psychosis. *Br J Psychiatry* 2007;190:515-20.
- [2] Association AP. Diagnostic and Statistical Manual of Mental Disorders, Text Revision (DSM-IV-TR) 4th Edition. Arlington: American Psychiatric Association; 2000.
- [3] Addington J, Addington D. Patterns, predictors and impact of substance use in early psychosis: a longitudinal study. *Acta Psychiatr Scand* 2007;115(4):304-9.
- [4] Archie S, Rush BR, Akhtar-Danesh N, Norman R, Malla A, Roy P, et al. Substance use and abuse in first-episode psychosis: prevalence before and after early intervention. *Schizophr Bull* 2007;33(6):1354-63.
- [5] Van Mastrigt S, Addington J, Addington D. Substance misuse at presentation to an early psychosis program. *Soc Psychiatry Psychiatr Epidemiol* 2004;39(1):69-72.
- [6] Wade D, Harrigan S, Edwards J, Burgess PM, Whelan G, McGorry PD. Course of substance misuse and daily tobacco use in first-episode psychosis. *Schizophr Res* 2006;81(2-3):145-50.
- [7] Dewa CS, Chau N, Cheng C, deRuiter W, Loong D, Trojanowski L. The Matryoshka Project: Examining the Effects of Enhanced Funding for Specialized Programs Wave 3 Report Early Intervention Programs. Toronto: Health Systems Research and Consulting Unit, Centre for Addiction and Mental Health; 2008.
- [8] Barnes TR, Mutsatsa SH, Hutton SB, Watt HC, Joyce EM. Comorbid substance use and age at onset of schizophrenia. *Br J Psychiatry* 2006;188:237-42.
- [9] Cronk CE, Sarvela PD. Alcohol, tobacco, and other drug use among rural/small town and urban youth: a secondary analysis of the monitoring the future data set. *Am J Public Health* 1997;87(5):760-4.
- [10] Wade D, Harrigan S, Edwards J, Burgess PM, Whelan G, McGorry PD. Patterns and predictors of substance use disorders and daily tobacco use in first-episode psychosis. *Aust N Z J Psychiatry* 2005;39(10):892-8.
- [11] Brown S, Inskip H, Barraclough B. Causes of the excess mortality of schizophrenia. *Br J Psychiatry* 2000;177:212-7.
- [12] McCreadie RG. Use of drugs, alcohol and tobacco by people with schizophrenia: case-control study. *Br J Psychiatry* 2002;181:321-5.
- [13] Stead LF, Lancaster T. Interventions for preventing tobacco sales to minors. *Cochrane Database Syst Rev* 2005;(1):CD001497.

Project Contributors

Principal Investigator

Carolyn Dewa, MPH, PhD

Co-Investigators

James Dunn, PhD

Janet Durbin, PhD

Paula Goering, RN, PhD

Nora Jacobson, PhD

Elizabeth Lin, PhD

Joan Nandlal, PhD

Ross Norman, PhD

George Tolomiczenko, PhD, MBA, MPH

Robert Zipursky, MD

The Matryoshka Co-ordinating Centre

Project Co-ordinator: Nancy Chau, MStat

Wayne deRuiter, MSc

Desmond Loong

Lucy Trojanowski

Angela Yip

Research Fellows

Diego Bassani, MPH, PhD

Chiachen Cheng, MD, MPH

CAMH Regional

Alan Cudmore (Hamilton)

Mark Erdelyan (Windsor)

Kim Karioja (Thunder Bay)

Brian Mitchell (Peterborough)

Suzanne Witt-Foley (Parry Sound)

Funded By

The Ontario Mental Health Foundation

Program Partners

CMHA Hamilton

Muskoka Parry Sound Community

Mental Health Services

The Lynx Early Intervention Psychosis

Program, Peterborough

CMHA Peterborough

CMHA Thunder Bay

CMHA Toronto

CMHA York

CMHA Windsor

STEPS Program, St. Michael's Hospital,

Toronto

SEEL Partners

Ministry of Health and Long-Term Care

Centre for Addiction and Mental Health

Canadian Mental Health Association –

Ontario

Ontario Federation of Community Mental

Health and Addiction Programs

Site Interviewers and Program Support

Hamilton	Wave 1	Wave 2 Jayson Keegan Kate Layard Patrick Riley	Wave 3 Jessica Pong Patrick Riley
Parry Sound	Wave 1	Wave 2 Marghita Austin Elizabeth Harper	Wave 3
Peterborough	Wave 1 David Barkley Alissa Bellwood Janet Bennett Barbara Burns Heather Davidson Greg Hammill Scotty Keast Melissa Lichtman Treena Maxwell Cindy Ward Gayle Wolfslast	Wave 2 Lynn Baribeau David Barkley Wendy Braund Barbara Burns Angela Chambers Jennifer Coulson Robin English Brooke Lacey Melissa Lichtman Marie Sullivan Cindy Ward	Wave 3 David Barkley Mae Hill Melissa Lichtman Amber Ward Cindy Ward
Thunder Bay	Wave 1 Ken Boegh Carmen Dore Freda Karioja Linda Stewardson Lee Tracz	Wave 2 Ken Boegh Carmen Dore Lillian Erickson Freda Karioja Linda Stewardson Lee Tracz	Wave 3 Ken Boegh Lillian Erickson Freda Karioja Linda Stewardson Lee Tracz
Toronto	Wave 1 Michele Caveen, MSc Kate MacDonnell Brenda Glenns, MHSC Frances Morton, MHSc Edwin Ng, MSc Melanie Ollenberg	Wave 2 Michele Caveen, MSc Michael Falikowski Alana Loewenberger Lawrence Martis Skye Mitchell Yoko Tsuyuki Angela Yip	Wave 3 Blair Burton Wayne deRuiter Sarah Landau Desmond Loong Skye Mitchell Lucy Trojanowski Angela Yip Natalia Zaslavska
Windsor	Wave 1 Al Bellofine Barb Blain Shelby Gloude Denise Jackson Hong Zhou	Wave 2 Barb Blain Gary Fraser Shelby Gloude Tammy Lewis Ruth Libby Ann-Marie Simpson Kerrie Simpson	Wave 3 Gary Fraser Shelby Gloude Tammy Lewis Ruth Libby Ann-Marie Simpson Kerrie Simpson
York	Wave 1 Markku Karpinnen Doris Moneweg	Wave 2 James Amodeo Doris Moneweg	Wave 3 Doris Moneweg